OPERATIONALLY RESPONSIVE SPACE

ORS

Operationally Responsive Space–3

Payloads

Payload Name	Providing Organization	Sponsoring Organization	Mission Description
STPSat-3 Primary Payload	Ball Aerospace	Space Test Program (STP)	The STPSat is a standard interface vehicle for the U.S. Air Force Space and Missile Systems Center, Space Development & Test Directorate (SMC/SD). The STPSat-3 spacecraft will support six payloads. • Integrated Miniaturized Electrostatic Analyzer Reflight, a US Air Force Academy mission designed to measure plasma densities and energies. • Joint Component Research, an AFRL and Army Space and Missile Defense Command space phenomenology mission. • Strip Sensor Unit, an AFRL risk reduction on-orbit testing and sensor assembly experiment. • Small Wind and Temperature Spectrometer, a NRL mission to characterize the earth's ionosphere and thermosphere. • TSI Calibration Transfer Experiment, a NASA/NOAA mission to collect high accuracy and precision measurements of total solar irradiance. • MMA Design LLC De-Orbit Module to be used to accelerate the de-orbit phase of the satellite to well under 25 years.
SENSE SV 1 & 2	SMC-XR		3U CubeSat that assess nanosat utility for space weather-characterization, GPS radio occultation, In-situ ion, neutral composition, neutral composition and ionospheric UV nightglow.
Prometheus	Los Alamos National Laboratory (LANL)	Operationally Responsive Space Office (ORS)	1.5U CubeSat is a system with the dual objective of evaluating new low-cost development and operations methodologies while also assessing the operational utility that can be provided with CubeSat technology. The Prometheus system consists of CubeSats along with supporting ground and field segment equipment, all designed as an integrated system.
ORSES	Space Missile Defense Center (SMDC)		3U CubeSat collaboratively developed between the ORS Office and SMDC to provide communications and data for underserved tactical users. The SMDC-1 baseline was upgraded with an ORS-developed Software Defined Radio (Vulcan Wireless) and NSA Type-I encryption (Raytheon) Gryphon device.
Horus	National Reconnaissance Office (NRO)		3U CubeSat second generation miniature satellite accessing performance of the space-based telescope for actionable refinement of ephemeris (STARE)—dedicated to the observation of space debris.
ORS Tech 1	John Hopkins University - Applied Physics Laboratory (JHU-APL)		3U CubeSat demonstration of multi-mission bus architecture.
Firefly	National Reconnaissance Office (NRO)		**(NASA Goddard)** A cubesat experiment to study atmospheric effects of lightening.
Ho'oponopono	NASA LSP (ELANA)	Space Test Program (STP)	**(University of Hawaii)** Will demonstrate the feasibility of a 3U CubeSat supporting orbital radar calibration capabilities to the United States Air Force by providing a source for radar interrogations, as well as collecting, disseminating, and forwarding ephemeris data.
KySat-2			**(Kentucky Space Consortium)** A technology demonstrator that builds upon the resources developed under the original KySat-1 mission.

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DragonSat-1	NASA LSP (ELANA)	Space Test Program (STP)	**(Drexel University)** An experiment to test the deployment of a gravity gradient boom.
NPS-SCAT			**(Naval Post Graduate School)** A solar cell array tester using the CubeSat form factor. SCAT measures the characteristics of solar cells and how they degrade over time in the space environment.
Trailblazer			**(University of New Mexico)** A proof of concept mission for Space Plug- and-play Architecture as well as Space Weather science research. It is designed to show how a variety of commercial parts can be modified to perform on open source bus architecture. In addition, it is flying a dosimeter as well as a 3D conformal printed circuit board serving as an IMU.
ChargerSat-1			**(University of Alabama-Huntsville)** Will improve communications for picosatellite operations, demonstrate passive nadir axis stabilization for picosatellite attitude control, and improve solar power collection for picosatellite operations.
PhoneSat 2.4			**(NASA ARC)** The PhoneSat aims to evaluate the effectiveness of cheap COTS hardware for use in space while increasing capabilities and dramatically lowering the cost of flight hardware.
Vermont Lunar CubeSat			**(Vermont Technical College)** Test a navigation system using NASA Goddard's GPS Enhanced Onboard Navigation System (GEONS) with a Novatel GPS and star tracker camera.
COPPER			**(St. Louis University)** The mission is to use a commercial off-the-shelf long wave infrared imager for in orbit characterization of space systems and earth observation.
Black Knight-1			**(West Point)** A multi-discipline project built by cadets from West Point's Engineering and Science disciplines and the academy's first satellite.
SwampSat			**(University of Florida)** Will demonstrate rapid retargeting and precision pointing maneuvers using miniaturized control moment gyroscopes (CMGs) developed at the University of Florida (UF).
CAPE-2			**(University of Louisiana-Lafayette)** A vehicle to teach local schools in the area space science and a proof of concept for satellite busses.
TJ^{3}Sat			**(Thomas Jefferson High School)** The primary objective is to provide resources for research in space education. Secondary objectives include production of an operation satellite to substantiate educational resources, collect data on satellite systems, and provide educational resources to other countries.
AFSS Non-Separating Tertiary	ATK	Operationally Responsive Space Office (ORS)	A collaborative effort between ORS and its partners to develop and demonstrate an Autonomous Flight Safety System (AFSS) that uses on-board tracking and processing to terminate an errant launch vehicle.
SoM/DoM Non-Separating Tertiary	Space Test Program (STP)	Space Test Program (STP)	The highly modular and scalable "dragNET" de-orbit module payload provided by MMA Design under an AFRL SBIR contract is a passive aerodrag de-orbit system that will de-orbit both the STPSat-3 spacecraft and Minotaur I launch vehicle upper stage at end of life.

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